

given by his formula, but as the formula is clearly inaccurate for temperatures above  $10^{\circ}$  C. it is premature to conclude, as he does, that the surface water is supersaturated with oxygen.

J. Y. BUCHANAN

(To be continued.)

THE BOSTON SOCIETY OF NATURAL HISTORY, 1830-1880

THE Boston Society of Natural History was founded in 1830 by a few earnest men, and in 1880 it resolved to commemorate its fiftieth anniversary by the publication of an historical sketch of its origin and life, and of a special series of scientific memoirs. This resolution has been carried into effect by the issue of a splendid quarto volume of over 600 pages and 40 plates, the paper and typography of which is worthy of the Boston Press.

Very interesting is the account given of the early struggles and early successes of this now so well-known institution. Preceded by the Linnean Society of Boston (founded in 1814), which at first made rapid progress and then gradually fell away, it was duly constituted in May, 1830, with Thomas Nuttall as president. At this time, Mr. S. H. Scudder states, there was not in New England an institution devoted to the study of natural history; there was not a college, except Yale, where even the modern views of geology were taught. The few labourers in the field of natural science worked alone, without aid or encouragement, and were regarded as triflers by a busy public. To go through the records of its early days, however briefly, would take up too much of the space at our disposal.

Once started into existence, the Society found itself with the responsibility of a rapidly increasing museum; and the demands upon its pecuniary resources, even though an enormous amount of gratuitous service was rendered by the members, soon began to be very troublesome. Generous and wealthy members replenished the empty treasury, and after its first ten years' existence (1830-40) it found itself, after a hard pinch, just free from debt. In 1841 the publication of the *Journal* of the proceedings commenced. Louis Agassiz joined the Society in 1847. Dr. Amos Burney, its president, died the same year at Rome. In 1848 the members assembled in a new house in Mason Street, and the close of a second decade (1840-1850) found them just holding their own.

Already in 1855 it became evident that the new abode was becoming all too small for the collections; and now it was well for the Society that they found so good a friend in John C. Warren, for he largely assisted in procuring the means for purchasing the present accommodation, though another ten years (1850-60) passed away, and it was not until 1861 that Dr. William J. Walker presented the Society with the estate in Bulfinch Street, where the Society's fine museum and library now stands. The magnificent donation of 10,000 dollars from Mr. Jonathan Philips, the products of the sale of the house in Mason Street, with many generous subscriptions, enabled the Society to think of building on the site presented to them by Dr. Walker, but on consideration they found that they had not more than half the money amount required. In this emergency Dr. Walker came again to their aid, presenting them with a gift of 20,000 dollars, on condition that a further sum of like amount were raised. The year 1864 found the Society in its present handsome edifice (the building of which had cost 80,000 dollars) and trying to solve the problem of how to keep up so spacious a mansion on its comparatively small resources. With wondrous liberality Dr. Walker once more offered a donation of 20,000 dollars, on the condition that a like amount were subscribed by others, the whole to form a working capital to be funded. This became an accomplished fact in May, 1864, but this was not all, for on Dr. Walker's death in April, 1865, it was

found that he had left by will a large fortune to the Society, and following this good example ere this fourth (1860-70) decade passed away, other liberal members had subscribed some 50,000 dollars to the capital of the Society, thus establishing the Institution on such a firm foundation as to secure its perpetuity as long as wisdom shall prevail in its Councils. Its property, besides the buildings with their inestimable contents, consisted of vested funds, amounting to 186,898·20 dollars, and a fair annual income from members.

The fifth decade, the celebrating of the close of which took place in April, 1880, was chiefly noted for the progress that was made in a scientific arrangement of the collections of the Society, under the custodianship of Mr. Hyatt; by the deaths (1874) of Louis Agassiz, about whose early career some very interesting facts are given, and (1874) of Jeffries Wyman, of whom there is a short biography, of Charles Pickering (1878), of C. F. Hartt (1863), and of T. M. Brewer (1880).

There is a very valuable account of the Teachers' School of Science, which seems in Boston to have attained a great success, and a summary of the general contents of the Museum. Very excellent portraits of Benjamin D. Greene, George B. Emerson, Amos Binney, J. C. Warren, Jeffries Wyman, and Thomas T. Bouvé, being the first six presidents of the Society, accompany this part of the volume and also a history of Dr. William J. Walker, and engravings of the portraits of A. A. Gould and Dr. Humphreys Storer.

The second portion of this fine memorial volume is devoted to the publication and illustration of a series of memoirs, of which we must be content with the bare enumeration of their titles. These are thirteen in number, and are profusely illustrated: N. S. Shaler, Propositions concerning the Classification of Lavas considered with Reference to the circumstances of their Extrusion; A. Hyatt, the Genesis and Evolution of the Species of Planorbis at Steinheim (ten plates and a map); S. H. Scudder, the Devonian Insects of New Brunswick, with a Note on the Geological Relations of the Fossil Insects from the Devonian of New Brunswick, by Dr. J. W. Dawson (one plate); W. G. Farlow, on the Gymnosporangia (Cedar Apples) of the United States (two plates); Theodore Lyman, on a New Structural Feature, hitherto unknown among Echinodermata, found in Deep Sea Ophiurans (two plates); W. K. Brooks, the Development of the Squid (*Loligo pealeii*, Les.), three plates; A. S. Packard, jun., the Anatomy, Histology, and Embryology, of *Limulus polyphemus* (seven plates); Edward Burgess, Contributions to the Anatomy of *Danais archippus*, Fab. (two plates); Saml. F. Clarke, the Development of a Double-Headed Vertebrate (one plate); C. S. Minot, Studies on the Tongues of Birds and Reptiles (one plate); Edward S. Morse, on the Identity of the Ascending Process of the Astragalus in Birds with the Intermedium (one plate); Lucien Carr, on the Crania of New England Indians (two plates); William James, the Feeling of Effort.

THE PHYSIOGNOMY OF CONSUMPTION<sup>1</sup>

THE idea that a certain type of face indicates a tendency to certain diseases is not only widely diffused in the medical profession, but among the public at large, as is shown by the frequent occurrence of such phrases as "consumptive-looking," and "apoplectic-looking." With a view to ascertaining how far these generally-entertained ideas are true, and of substituting for mere personal impressions the test of exact and unprejudiced investigation, the authors of this paper have made a number of observations by the method of composite portraiture, already described by Mr. Galton in NATURE. The countenance which is supposed to indicate a tendency to phthisis or

<sup>1</sup> "An Inquiry into the Physiognomy of Phthisis, by the Method of Composite Portraiture." By Francis Galton, F.R.S., and F. A. Mahomed, M.D.

consumption, is one of the best marked and most commonly recognised. The authors have begun with this disease, and at present have limited themselves to it. A large number of portraits of phthisical patients were first taken, and were then grouped into composites, clinical facts being first taken as guides for grouping. Thus, cases of advanced disease were grouped first, but they gave no result beyond that of well-marked emaciation. Cases grouped according to the rapidity of their course also yielded no characteristic type, nor was anything very definite at first obtained from those in whom the hereditary taint was strong, but on further investigation this last group of hereditary cases was found to fall into two main divisions, not separated by any abrupt line of demarcation. In the first division the faces were broad, with coarse, blunted, and thickened features; while in the second the faces were thin, narrow, ovoid, with thin, softened, and narrow features. These two groups correspond to the two types well recognised by physicians as strumous and tubercular. On comparing the phthisical with non-phthisical cases, however, it was found that the percentage of narrow ovoids was almost exactly the same in the phthisical and non-phthisical patients. Although the authors do not say so, we may perhaps be justified in regarding these two types of face as possibly racial. Their results lend no countenance to the belief that any special type of face predominates among phthisical patients, nor to the generally entertained opinion that the narrow ovoid tubercular face is more common in phthisis than in other diseases. Whether it is more common than among the rest of the healthy population, they cannot at present say. In comparing composites, both of the broad faces and of the narrow ovoid faces in phthisical and non-phthisical patients, they found that in each case the phthisical patients presented a more delicate form of each type, with finer features, a lighter lower jaw, and an altogether narrower face. Although their conclusions seem to indicate that there is no foundation for the belief that persons possessing certain physical characteristics are especially liable to tubercular disease, yet it may hereafter be proved that some explanation of the doctrine may be found in the course of the disease when it attacks such persons.

Thus the delicately-organised individuals called "tubercular," and characterised by their "narrow ovoid" faces, have been compared with horses and cattle who have been what is called "over-bred"; such animals are described as having too much nerve and too little bone and muscle; they have no "staying power," and readily "knock up." So these delicately-formed individuals are less able to stand the strain of disease and are more liable to its attacks than their more robustly-built fellows. Again, if it be true, as frequently asserted, that those having the features called "strumous" probably inherit a more or less diluted syphilitic taint, it is not surprising that they should be especially liable to inflammatory changes of a low type, and that disease in them should be readily amenable to treatment, especially by mercury, a result commonly seen in the so-called "strumous" diseases of children and often in those of adults."

This paper opens quite a new field of inquiry which is of great interest, and is likely to lead to important practical results.

#### JOSEPH DECAISNE

BY the somewhat unexpected death of Prof. Decaisne, one of the most familiar names disappears from the scientific world of France. Although so inseparably associated with Paris Decaisne was by birth a Belgian, having been born in Brussels in 1809. His brother, still living, rose to the position of Inspector-General of the Army Medical Service of Belgium. When quite a young man Joseph Decaisne entered the service of the Jardin des Plantes at Paris in the position of a gardener. The vener-

able institution with which for the rest of his life he was associated is very different from a mere pleasure-ground, and it would be a mistake to suppose that the starting-point in Decaisne's career implied anything more than rising from the lowest rank in an establishment which in every detail is nothing if not scientific. In 1840 he was attached to the Herbarium as *Aide naturaliste*, finally returning to the Garden as *Professeur de Culture* and Director in succession to Mirbel.

From Mirbel to the present day is, measured by the rate of progress in botanical science, a tolerably vast leap. Decaisne published his first paper in 1831, and the half century which has since elapsed covers our whole modern knowledge of the histology and morphology of plants. The familiar demonstrations of our biological class-rooms already seem a little hackneyed. Yet they deal with structures and phenomena which, when the distinguished botanist who was buried last week first began to work, were things undreamed of.

Decaisne at a very early period turned his attention to the serious study of algae, and it is perhaps in connection with this group that he has left his most indelible mark in botanical history. In 1841 he showed once for all that the *Polypères calcifères* of Lamouroux, were not merely *Algæ*, but that the affinities of the diverse types which they comprised could be determined with some certainty. This was a piece of work which may be compared in its way to Mr. Moseley's discovery of the alcyonarian structure of *Heliopora*. The conclusion to which he arrived was not a happy guess, but was based on a laborious examination of the whole class of *Algæ*, with the object of arranging their chaotic assemblage on a basis approaching as nearly as possible to a natural classification. The results are given in an elaborate paper published in 1842. The divisions proposed are not essentially very different from those which are generally accepted at the present day. And they were really more natural than the subsequent but far more artificial classification proposed by Harvey, which has long held its ground in this country. In this particular line Decaisne himself did little more. But in scientific history a man's true position and influence is often most inadequately measured by the actual bulk of his published papers. Decaisne really founded the French School of Algology, the results of which will always be the fundamental memoirs in this branch of morphology. In 1839 Thuret came to Paris, and received from Decaisne instruction in the rudiments of botany. A master will generally infect a competent pupil with his own special enthusiasm, and it is easy to read the secret of Thuret's own splendid scientific career. Decaisne and Thuret began to work together on *Fucus*, which they procured from the fish market of Paris. They soon found, however, it necessary to visit the coast to carry on their observations, the result of which was published in 1844, in a joint paper, in which they first accurately described the antherozoids, assigning them their true function, and gave an account of the beautiful process of division of the primary oosphere in some of the species. After Decaisne's appointment to the direction of the Jardin des Plantes, Thuret carried on his algological work for a time alone, ultimately associating himself with Dr. Bornet, who is happily still living, and occupied with the gradual publication of their joint and classical work.

From the time of Decaisne's appointment to the direction of the Jardin des Plantes he in fact devoted himself heart and soul with scrupulous conscientiousness to the field of work assigned to him. The Jardin des Plantes deals not merely with plants in their feral, but also in their cultivated state. The mere routine duties of his post were onerous beyond belief. The occupants of French administrative scientific posts have no sinecure. They are at the beck and call of the State in all that relates to their subject, and no small